

was concentrated on the light-mill, which then revolved about 200 times a minute.

The light was cut off at the beginning of the experiment by means of a screen, and the position of rest of the glass vessel was read off by means of the dot of light on the scale. The screen was then suddenly removed, and in every case a large deflection of the glass vessel was observed. The vessel was deflected in the opposite direction to that in which the mill turned. When the velocity of the mill had become constant, the vessel returned to its original position. On suddenly cutting off the light the vessel was again deflected, but in the opposite direction to that on starting the experiment. The vessel therefore now turned in the same direction in which the mill turned.

These experiments are easily explained on the assumption that the force acting on the vessel enclosing the light-mill is exactly equal and opposite to that acting on the mill itself. While the velocity of the mill in one direction is increasing, a force acts in the opposite direction on the vessel. When the velocity has become constant, the force which tends to drive the mill round is exactly counterbalanced by the resistance which opposes the motion of the mill. The two forces acting on the vessel will therefore counterbalance, and the vessel will return to its original position of rest. When the light is cut off, the resistance will stop the motion of the mill. The reaction of the resistance will act on the enclosure, and the enclosure will turn in the same direction as the mill.

By means of the reaction on the enclosure I have been able to calculate the strength of the force; and I have found that the pressure on a surface on which light of equal intensity to that used in my experiments falls, is equal to that produced by the weight of a film of water on a horizontal surface equal in thickness to the length of a wave of violet light.

III. "On the Number of Figures in the Period of each Reciprocal of a Prime from 53,000 to 60,000." By W. SHANKS. Communicated by the Rev. G. SALMON, D.D., F.R.S., Regius Professor of Divinity in the University of Dublin. Received March 1st, 1876.

[In two former papers printed in the Proceedings (vol. xxii. pp. 200 and 384) the author gave similar tables from 1 to 30,000; and in a subsequent paper (Proceedings, vol. xxiii. p. 260), which was ordered to be preserved in the Archives, the table was extended to 40,000. A MS. copy of the addition appended to printed copies of his former paper and extended to 53,000 was presented by the author to the Society's library, and to this the present continuation from 53,000 to 60,000 will be attached.]